Endodontic treatment of tooth with periapical lesion using MTA- Fillapex.

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Introduction

Since the beginning of the 20th century, the biological and technical importance of endodontic sealer cements have made their chemical and physical properties receive considerable attention.

Cements are categorized according to their main chemical components: zinc oxide-eugenol, calcium hydroxide, glass ionomer, silicone, resin and bioceramic (Haddad et al 2016).

Bioceramic materials have recently been introduced into Endodontics as repair cements and root canal sealer cements. They are the result of the combination between calcium silicate and calcium phosphate applicable to biomedical and dental use. The main advantages of bioceramics are related to their physical and biological properties. They show alkaline pH, antibacterial activity, radiopacity and biocompatibility. They are chemically stable within the biological environment, have potential to form hydroxyapatite and are non-toxic (Candeiro et al 2012).

Two main advantages are associated with the use of bioceramic materials as sealer cements. Their biocompatibility, which avoids rejection by periapical tissues, and their composition with calcium phosphate, which improves their properties and results in a chemical composition and crystalline structure similar to dental and bone apatite materials, thus improving the attachment of the sealer material to root dentin (Haddad et al 2016).

However, one disadvantage of these materials lies in the difficulty of removing them from the root canal. In general, the literature shows that this difficulty exists for different brands. However, the removal of MTA-Fillapex appears to be faster than other products (Uzunolgu et al., Haddad et al., 2016). Thus, the objective of this clinical case is to show the clinical sequence to perform an endodontic treatment using MTA-Fillapex.

Case report

A 26-year-old female patient sought dental care for aesthetic rehabilitation. In periapical panoramic radiographs, a lesion was found in tooth 14 (Figure 1) with a mesial-occlusal composite resin restoration, pain to vertical percussion, and negative for cold sensitivity test.

In the first session, a diamond bur and a non-cutting tip bur (Endo Z, Angelus Press, Parana, Brazil) were used for opening the crown, and the cervical and middle thirds prepared with Hedstroen hand files (Dentsply, Rio de Janeiro, Brazil) and Gates Glidden drills # 2, # 3 and # 4 (Angelus Dental Product Industry SA, Paraná, Brazil). Constant irrigation with 2.5% sodium hypochlorite was performed. In electronic and radiographic odontometry, a length of 23 mm was verified and hand instrumentation was promoted up to file Kerr # 30 (Dentsply , Rio de Janeiro, Brazil). Intracanal calcium hydroxide based medicaments (biodynamic Ibiraporã, Brazil) were used in association with saline and temporary IRM restoration.

Two medication changes were performed every 30 days. After this period, the patient returned for the filling. Instrumentation was performed with reciprocating file R25 (Reciproc Blue, VDW, Müchen) (Figure 2A and B). Cone test radiography was done with cone R25, which is equivalent to the diameter of the file (Figure 3A and B).

For the filling, MTA-based bioceramic endodontic cement - MTA - Fillapex - (Angelus Dental Product Industry SA, Paraná, Brazil) was used. The cement was poured over the glass plate (Figure 4A) in a 1:1 ratio, as recommended by the manufacturer, and manipulated to a homogeneous consistency (Figure 4B). The gutta-percha cone was soaked in the cement and inserted into the root canal (Figure 5). The filling was performed by the technique of lateral and vertical condensation, leaving the filling 2 mm below the coronary limit (Figure 6A and 6B). The tooth was restored with a provisional IRM restorer (Dentsply , Rio de Janeiro, Brazil).

Conclusion

The cleaning and shaping of the canal systems at the suitable length, ending with filling techniques using bioceramic cements allows the repair of periapical tissues and prevents recontamination due to the properties of the material, allowing the clinician to achieve satisfactory results.

References

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Figura 1A, 1B: Initial clinical and radiographic appearance.

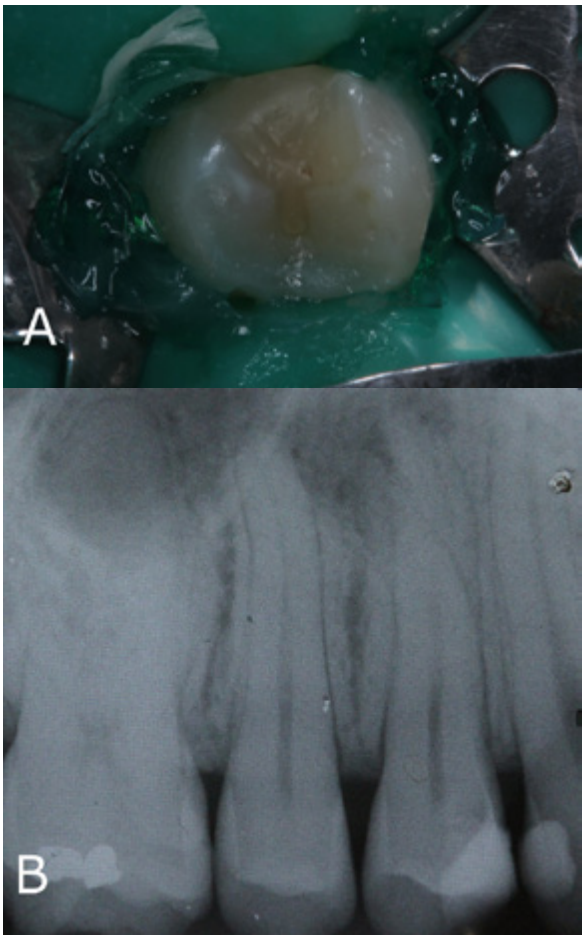
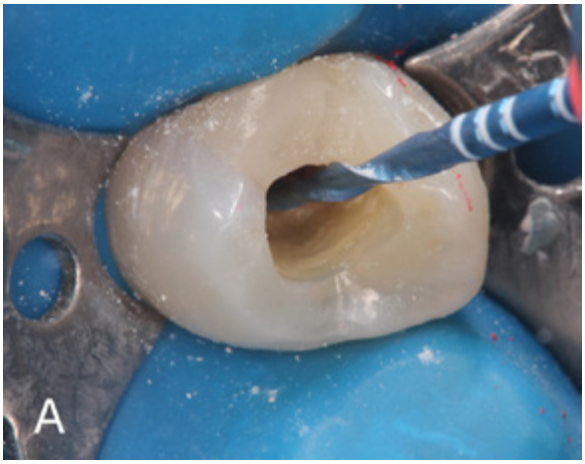


Figura 2A, 2B: Instrumentation with Reciproc Blue.



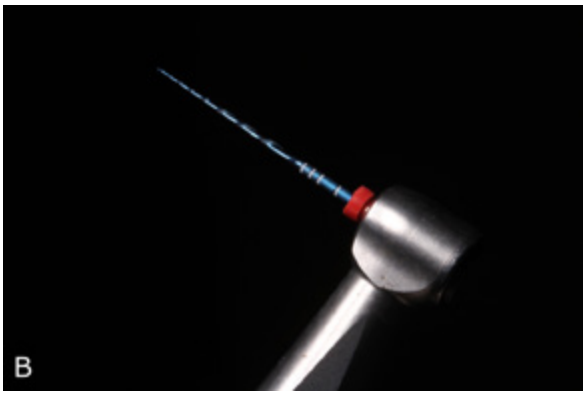


Figura 3A, 3B: Cone test.

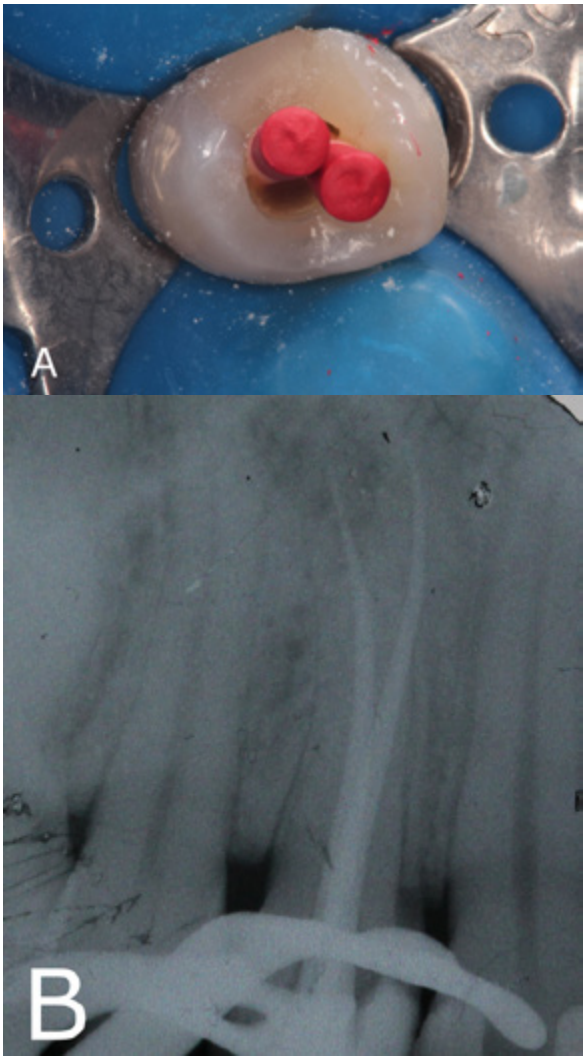


Figura 4A, 4B: A. MTA-Fillapex cement poured over plate B. Homogeneous manipulation.

Figura 5: Insertion of the cone soaked in the cement.

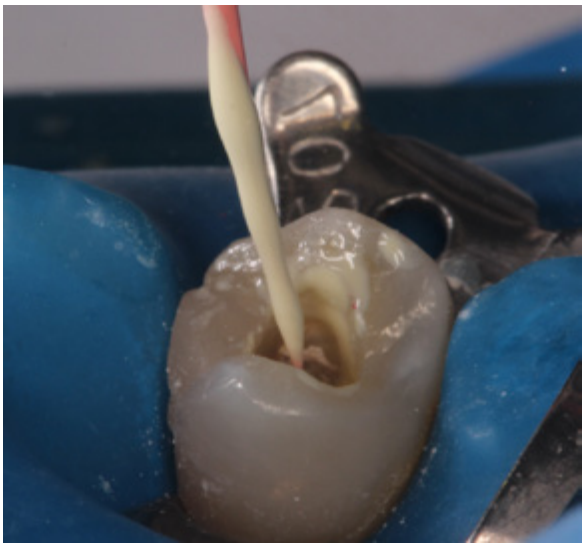


Figura 6A, 6B: Clinical and radiographic final appearance.